Remarks

I. Claim status

Claims 1-34 were pending.

Claims 3, 4, 15, 24, and 25 have been canceled.

A. Claims 1, 2, 5-7, 11, 13, 14, 16, 19-23, 26-28, 32, and 34

The Examiner has indicated that claims 4-6, 15, and 25-27 would be allowable if rewritten in independent form.

Claim 1 has been amended and now incorporates the features of claim 3 and allowable claim 4. Thus, claim 1 now should be allowed. Claims 2, 5-7, 11, and 21 depend from claim 1 and therefore are allowable for at least the same reasons.

Claim 13 has been amended and now incorporates the features of allowable claim 15. Thus, claim 13 now should be allowed. Claims 14, 16, 19, and 22 depend from claim 13 and therefore are allowable for at least the same reasons.

Claim 20 has been amended and now incorporates the features of claim 24 and allowable claim 25. Thus, claim 20 now should be allowed. Claims 23, 26-28, 32, and 34 depend from claim 20 and therefore are allowable for at least the same reasons.

B. Claims 8-10, 12, 17, 18, 29-31, and 33

The remaining claims 8-10, 12, 17, 18, 29-31, and 33 stand rejected under 35 U.S.C. § 102(e) over Ma (U.S. 6,565,003).

II. Claim rejections

A. Claims 8, 17, and 29

Each of claims 8, 17, and 29 recites that the input image is rotated and that the rotated input image is processed to detect a graphical bar code candidate in response to a failure to detect a graphical bar code candidate in the input image before rotation.

The Examiner has asserted that:

> As to claims 8, 17, and 29, Ma discloses the method comprising rotating the input image and processing the rotated input image to detect a graphical bar code candidate in response to a failure to detect a graphical bar code candidate in the input image before rotation (column 4, lines 2-27, column 10, line 11 through column 11, line 67, column 12, lines 1-50).

Contrary to the Examiner's assertion, however, Ma does not even hint that the input image could be rotated in response to a failure to detect a graphical bar code candidate in the input image before rotation. In Ma's method, a two-dimensional bar code (col. 3, lines 63-64: "in the form of a bit map of rows and columns of data pixels representing encoded data bits") is detected by performing various test on input image regions within a sliding window. The sliding window is moved across a pixel-based binary representation of a scanned human-readable medium in a predetermined stepwise fashion (see, e.g., col. 4, lines 9-12). If none of the sliding window positions yields a candidate region that satisfies all of the tests required by Ma's method, the bar code detection process terminates. Ma does not teach or suggest how his system might respond to a failure to detect a graphical bar code candidate in the scanned image. Ma certainly does not teach or suggest that the input image is rotated and that the rotated input image is processed to detect a graphical bar code candidate in response to a failure to detect a graphical bar code candidate in the input image before rotation, as recited in each of claims 8, 17, and 29.

The disclosure at column 4, lines 2-27, merely provides an overview of Ma's decoding method. There is nothing in this disclosure that would have led one of ordinary skill in the art to rotate the input image and to process the rotated input image to detect a graphical bar code candidate in response to a failure to detect a graphical bar code candidate in the input image before rotation, as recited in each of claims 8, 17, and 29.

The disclosure at column 10, line 11 through column 11, line 67, and column 12, lines 1-50, merely describes the details of locate step 120, which is shown in FIG. 5. This disclosure only applies to a single pass through a single orientation of the scanned image. In this disclosure, Ma does not even hint that the locate step 120 could be applied to a rotated version of the original the scanned image. Indeed, there is nothing in this disclosure that would have led one of ordinary skill in the art to rotate the input image and to process the rotated input image to detect a graphical bar code candidate in response to a failure to detect a graphical bar code candidate in the input image before rotation, as recited in each of claims 8, 17, and 29.

For at least the reasons explained above, the Examiner's rejection of independent claims 8, 17, and 29 under 35 U.S.C. § 102(e) over Ma should be withdrawn.

B. Claims 9, 10, 18, 30, and 31

Each of claims 9, 10, 18, 30, and 31 recites that a graphical bar code candidate is detected based upon a second training sample in response to a failure to detect a graphical bar code candidate in the input image based upon a first training sample.

The Examiner has asserted that:

> As to claims 9, 18, and 30, Ma discloses the method further comprising detecting a graphical bar code candidate based upon a second training sample in response to a failure to detect a graphical bar code candidate in the input image based upon a first training sample (fig. 10, column 12, lines 25-50, column 17, lines 40-60).

As explained above, if none of the sliding window positions yields a candidate region that satisfies all of the tests required by Ma's method, the bar code detection process terminates. Ma does not teach or suggest how his system might respond to a failure to detect a graphical bar code candidate in the scanned image. Ma certainly does not teach or suggest that a graphical bar code candidate is detected based upon a second training sample in response to a failure to detect a graphical bar code candidate in the input image based upon a first training sample, as recited in each of claims 9, 10, 18, 30, and 31.

Moreover, Ma does not detect a graphical bar code candidate based upon training samples. Instead, Ma uses a Core Region Density test, a Quiet Region Density test, and a Cropping test to detect candidate regions. None of these tests is based on a training sample.

Indeed, Ma's method presumes that each two-dimensional bar code has the same characteristics (namely, a uniform distribution of black and white bits, a quiet region in which substantially all of the bits are white, and the same size). Therefore, there is no need whatsoever for any of the tests performed in Ma's detection method to be based on a training sample, and there certainly would not be any need to repeat Ma's detection method using a second training sample in response to a failure to detect a graphical bar code candidate in the input image based upon a first training sample.

The disclosure in FIG. 10 and at column 12, lines 25-50, merely describes a method in which in response to the failure of a region to pass the cropping test, the dimensions of any object within the current sliding window position are determined. The sliding window 300 then "is moved beyond the boundaries of the identified object, so that the cropping test will not be called a multiple number of times for the same object" (col. 12, lines 44-47). There is nothing in this disclosure that would have led one of ordinary skill in the art to detect a graphical bar code candidate based upon a second training sample in response to a failure to detect a graphical bar code candidate in the input image based upon a first training sample.

The disclosure at column 17, lines 40-60 merely describes the deskewing and cropping steps of Ma's method. These steps are performed after a candidate region has been detected. This disclosure has nothing whatsoever to do with detecting a graphical bar code candidate based upon a second training sample in response to a failure to detect a graphical bar code candidate in the input image based upon a first training sample.

For at least the reasons explained above, the Examiner's rejection of independent claims 9, 10, 18, 30, and 31 under 35 U.S.C. § 102(e) over Ma should be withdrawn.

C. Claims 12 and 33

Each of claims 12 and 33 recites that the trimmed graphical bar code candidate is resolution scaled.

The Examiner has asserted that:

> As to claims 12 and 33, Ma discloses the method further comprising resolution scaling the trimmed graphical bar code candidate (col. 8, lines 24-51).

Contrary to the Examiner's assertion, however, Ma does not teach or suggest that the cropped two-dimensional bar code is resolution scaled. Instead, Ma teaches that after the

two-dimensional bar code has been cropped, horizontal and vertical center lines are established. Then, the bits of the two-dimensional bar code are simply "read out of the two-dimensional bar code by recording the pixel value lying at the intersection of each horizontal and vertical center line" (col. 18, lines 13-15). Ma's method does not perform any resolution scaling of the cropped two-dimensional bar code.

The disclosure at col. 8, lines 24-51 merely describes the first step 102 of the reading process in which the resolution of the scanned input image is optionally reduced "to speed up the locating step 104" (col. 8, lines 26-27). This disclosure has nothing whatsoever to do with the processing steps of Ma's method that are applied to the cropped two-dimensional bar code.

For at least the reasons explained above, the Examiner's rejection of independent claims 12 and 33 under 35 U.S.C. § 102(e) over Ma should be withdrawn.

III. Conclusion

For the reasons explained above, all of the pending claims are now in condition for allowance and should be allowed.

Charge any excess fees or apply any credits to Deposit Account No. 08-2025.

Respectfully submitted,

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Edouard Garcia
Reg. No. 38,461
Telephone No.: (650) 631-6591

Please direct all correspondence to:

Hewlett-Packard Company
Intellectual Property Administration
Legal Department, M/S 35
P.O. Box 272400
Fort Collins, CO 80528-9599